Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An assembly for a microarray assay device, comprising:

a microplate having a plurality of discrete array formation areas each formed of a flexible material and activated for immobilization of biorecognition materials, and barriers formed between the array formation areas to restrict fluid cross-flow therebetween; and

a vacuum fixture defining a top surface and an interior chamber connectable to a vacuum source, wherein the microplate is mounted on the top surface of the vacuum fixture so that the array formation areas conform to the top surface of the vacuum fixture, the vacuum fixture further defining a plurality of orifices connected to the interior chamber and opening at the top surface at locations corresponding to the array formation areas when the microplate is mounted on the top surface of the vacuum fixture, wherein each of the orifices connects directly to both the top surface and the interior chamber, wherein each of the orifices are directly below the ~~assay~~ array formation areas, wherein there is no fluid communication between the array formation areas and the orifices.

2. (Previously presented) The assembly of claim 1, wherein the barriers are walls formed of the flexible material, hydrophobic patches, troughs, gaskets, or pedestals formed between the array formation areas.

3. (Previously presented) The assembly of claim 1, wherein the barriers have a height of less than about 4 mm.

4. (Previously presented) The assembly of claim 1, wherein the microplate comprises a tray formed of the flexible material, the tray having a plurality of discrete wells formed therein, each well containing an array formation area at its bottom, wherein the bottom of each well is supported on the top surface of the vacuum fixture.

5. (Previously presented) The assembly of claim 1, wherein the microplate comprises a tray formed of the flexible material, the tray having a peripheral depression surrounding one or more array formation areas.

6. (Previously presented) The assembly of claim 1, wherein the microplate comprises a support plate, a flat substrate formed of the flexible material disposed over the support plate, and a gasket defining a plurality of holes, the gasket being disposed over the substrate and sealed thereto, where each area of the substrate exposed by a hole of the gasket contains an array formation area.

7. (Previously presented) The assembly of claim 1, wherein the microplate further comprises a rigid frame detachably attached to the flexible material, wherein the rigid frame is adapted for mounting the microplate on the top surface of the vacuum fixture.

8. (Previously presented) The assembly of claim 7, wherein the microplate further comprises a plurality of rigid hangers, and a plurality of well strips formed of the flexible material, each well strip being pressed-fitted into a rigid hanger, each well strip containing one or more of the discrete array formation areas.

9. (Previously presented) The assembly of claim 1, further comprising a plurality of microarrays of biorecognition materials, each microarray being formed within the array formation area.

10. (Previously presented) The assembly of claim 9, wherein the biorecognition materials include biomolecules, cells or cellular components.

11. (Previously presented) The assembly of claim 9, wherein the biorecognition materials are labeled.

12. (Previously presented) The assembly of claim 9, wherein each array contains from 1 to 1536 elements of biorecognition materials.

13. (Previously presented) The assembly of claim 1, wherein the array formation areas are activated for immobilization of biorecognition materials by covalent interaction, noncovalent interaction or affinity interaction.

14. (Previously presented) The assembly of claim 1, where the array formation areas are activated by direct surface treatment, placement of activated inserts, or adsorption of an activated coating to surface of the array formation areas.

15. (Previously presented) The assembly of claim 1, wherein the flexible material is a thermal formable polymer material and the microplate is formed by vacuum forming or injection molding.

16. (Previously presented) The assembly of claim 1, wherein the flexible material has a thickness of about 0.1 to 100 mils.

17. (Previously presented) The assembly of claim 16, wherein the flexible material has a thickness of about 1 to 10 mils.

18. (Previously presented) The assembly of claim 1, wherein the flexible material has a flexural modulus of about 170-220 Ksi, a Shore D hardness of about 65-80, and a deflection temperature at 66 Psi of about 100-200°F.

19. (Previously presented) The assembly of claim 1, further comprising a lid formed of a plurality of caps each corresponding to the array formation area.

20. (Previously presented) The assembly of claim 19, wherein each cap comprises a gas inlet port, a gas outlet port, and a gas diffusion member disposed on an inside of the cap.

21. (Previously presented) The assembly of claim 20, wherein each cap further comprises a temperature control element.

22. (Currently amended) An assembly for a microarray assay device, comprising:

a microplate having a plurality of wells formed of a flexible material and having continuous flat bottoms; and

a vacuum fixture defining a top surface and an interior chamber connectable to a vacuum source, wherein the microplate is mounted on the top surface of the vacuum fixture so that the bottom of each well conforms to the top surface of the vacuum fixture, the vacuum fixture further defining a plurality of orifices connected to the interior chamber and opening at the top surface at locations corresponding to the bottoms of the wells when the microplate is mounted on the top surface of the vacuum fixture, wherein each of the orifices connects directly to both the top surface and interior chamber, wherein each of the orifices is directly below the ~~assay~~

~~formation areas~~ wells, wherein there is no fluid communication between the wells and the orifices.

23. (Original) The assembly of claim 22, wherein the vacuum fixture further comprises a temperature control device for controlling the temperature of the top surface of the vacuum fixture.

24. (Original) The assembly of claim 23, wherein the temperature control device includes a plurality of channels formed in the vacuum fixture in the vicinity of the top surface for passing a temperature-controlled fluid.

25. (Previously presented) The assembly of claim 22, further comprising a peristaltic pump connected to the interior chamber for generating an alternating positive and negative pressures within the interior chamber, whereby the alternating positive and negative pressures are conducted by the orifices to the top surface of the vacuum fixture at locations corresponding to the bottoms of the wells to create a micromixing effect in the wells.

26-30. (Canceled)

31. (Previously presented) The assembly of claim 22, wherein each well containing an array formation area at its bottom.

32. (Previously presented) The assembly of claim 22, wherein the microplate further comprises a rigid frame detachably attached to the flexible material, wherein the rigid frame is adapted for mounting the microplate on the top surface of the vacuum fixture.